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INTERACTION AND TRANSACTION

IN recent papers [1] looking towards a firm terminology for knowings and knowns special stress was placed on two procedures of knowledge [2] called Transaction and Specification. Specification was distinguished from Definition, and the immediate development of Transaction was connected with Specification rather than with Definition.

We propose in succeeding papers to discuss Transaction and Specification at some length, each on its own account, and to show how important it is for any theory of knowledge that their characteristics as natural processes of knowing-men and things-known should be fully understood. Before undertaking this, however, it will be well to display in the present paper the extent to which the transactional presentation of objects, and the determination of objects as themselves transactional, has been entering recent physical research. In so doing, the transactional presentation will be brought into contrast with the antique view of self-actions and with the presentation of classical mechanics in terms of interactions, but the discussion will not be widened beyond what is needed for the immediate report.

The reader of our earlier papers will recall that in our general procedure of inquiry no radical separation is made between that which is observed and the observer in the way that is common in the epistemologies and in standard psychologies and psychological constructions. Instead, observer and observed are held in close organization. Nor is there any radical separation between that which is named and the naming. Comparably knowings and knowns, as inclusive of namings and observings, and of much else as well, are themselves taken in a common system of inquiry, and not as if they were the precarious products of a struggle between severed realms of "being." It is this common system of the knowing and the known which we call "natural," without either preference or prejudice with respect to "nature," such as now often

[1] In this JOURNAL, Vol. XLII (1945), pp. 5–27, 39–51, 225–247, 645–662. See especially pp. 239–246.

[2] The word "knowledge" has the value here of a rough preliminary description, loosely indicating the field to be examined, and little more.

attends the use of that word. Our position is simply that since man as an organism has evolved among other organisms in an evolution called "natural," we are willing under hypothesis to treat all of his behavings, including his most advanced knowings, as activities not of himself alone, nor even as primarily his, but as processes of the full situation of organism-environment; and to take this full situation as one which is before us within the knowings, as well as being the situation in which the knowings themselves arise.[3]

What we call "transaction," and what we wish to show as appearing more and more prominently in the recent growth of physics, is, therefore, in technical expression, neither to be understood as if it "existed" apart from any observation, nor as if it were a manner of observing "existing in a man's head" in presumed independence of what was observed. The "transaction," as an object among and along with other objects, is to be understood as unfractured observation—complete as it stands, at this era of the world's history, with respect to the observer, the observing, and the observed, and affected by whatever merits or defects it may prove to have when it is judged, as it surely will be in later times, by later manners.

When Comte cast a sweeping eye over the growth of knowledge as far as he could appraise it, he suggested three stages or levels which he called the theological, the metaphysical, and the positive. One would not want to accept stages in this form today any more than one would want to adopt Comte's premature scheme for the organization of the sciences. Nevertheless his general sketch has entered substantially into everyone's comprehension. Roughly speaking, animistic personifying and personalizing statements about the world and its phenomena were prevalent in the early days; hypostatizations such as physical "forces" and "substances" followed them; only in recent centuries have we been gaining slowly and often painfully that manner of statement called positive,[4] ob-

[3] For formal recognition and adoption of the "circularity" involved in the statement in the text, see *op. cit.*, p. 238.

[4] Comte's "positive" retained something from his "metaphysics," just as that retained something from his "theological." He substitutes "laws" for "forces," but gives them no extensive factual construction. "Logical positivism" has anachronistically accepted this Comtean type of law, emptied it of what factuality it had managed to have, and further formalized it. Such a "positive" does not get beyond short-span, relatively isolated, temporal sequences and spatial coexistences. Its background of expression, combined with a confused notion of the part mathematics plays in inquiry, is what often leads scientists to regard "laws" as the essential constituents of science, instead of stressing directly the factual constructions of science in space-time.

jective, or scientific. How the future may view even our best present opinions is still far from clear.

Let us consider a set of opposed tendencies which, for the moment, in everyday English, we may call the narrowing and widening of the scope of scientific observation with respect to whatever problem is on hand. We may, by way of introduction, sketch such an alternation of viewpoints for the most general problems of physics from Newton to Maxwell.

For many generations, beginning with Galileo after his break with the Aristotelian tradition, and continuing until past the days of Comte, the stress in physical inquiry lay upon locating units or elements of action, and determining their interactions. Newton established firmly the system under which particles could be chosen and arrayed for inquiry with respect to motion, and so brought under definite report. But not all discovery resulted in the establishment or use of new particles. In the case of heat, for example, it did not come to pass that heat-particles were identified. "The progress of science," say Einstein and Infeld, "has destroyed the older concept of heat as a substance."[5] Particles of a definitely Newtonian type were, it is true, retained in the work of Rumford and Joule, and later of Gibbs; and energy was advocated for a long time as a new substance with heat as one of its forms. But the particle fell upon statistical days (evil, indeed, from the point of view of its older assuredness), and what heat became in the end was a configuration in molecular ranges rather than a particulate presence. Faraday's brilliant observation found that all that happened electrically could not be held within the condenser box, nor confined to the conducting wire. Clerk Maxwell took Faraday's observations and produced the mathematical formulation through which they could be expressed.[6] Maxwell's work

[5] *The Evolution of Physics*, 1938, p. 51. We shall use the Einstein-Infeld book for repeated citation, not at all for confirmation of our views or for support of our development, but in order to have before the reader's eyes in the plainest English authoritative statements of certain features of physics which every one ought to know, but which in the fields of knowledge-theory are put to use by few. Since we shall have a good deal to do (although little expressly to say) with the way in which rigidly established views block needed progress—a point to which Max Wertheimer, whom we shall later quote, has recently given vivid illustration—a further comment by Einstein and Infeld is significant: "It is a strange coincidence that nearly all the fundamental work concerned with the nature of heat was done by non-professional physicists who regarded physics merely as their great hobby" (*Ibid.*, p. 51).

[6] "The most important event in physics since Newton's time," say Einstein and Infeld of Maxwell's equations, "not only because of their wealth of content, but also because they form a pattern for a new type of law" (*Ibid.*, p. 148).

furnished the structure for the developments of Roentgen, Lorentz, Planck, and Einstein, and their compeers, and for the more recent intra-atomic exploration. His posthumous book, *Matter and Motion,* has a lucidity which makes it a treasure to preserve and a model which all inquirers, especially those in newly opening fields, can well afford to study. The following is from the Preface to this book, dated 1877, and included in the British edition of 1920, edited by Sir Joseph Larmor:

> Physical science, which up to the end of the eighteenth century had been fully occupied in forming a conception of natural phenomena as the result of forces acting between one body and another, has now fairly entered on the next stage of progress—that in which the energy of a material system is conceived as determined by the configuration and motion of that system, and in which the ideas of configuration, motion, and force, are generalized to the utmost extent warranted by the physical definitions.

Although Maxwell himself appreciated what was taking place, almost two generations were needed before physicists generally began to admit it: *teste,* their long hunting of that greatest of all victims of the Snark that was Boojum, the ether: the process of reenvisionment is far from completed in physics even yet. The very word "transaction," which we are to stress, was, indeed, used by Maxwell himself in describing physical events; he even speaks of "aspects" of physical transactions in much the sense that we shall employ that word.[7] Thus:

> If we confine our attention to one of the portions of matter, we see, as it were, only one side of the *transaction*—namely, that which affects the portion of matter under our consideration—and we call this aspect of the phenomenon, with reference to its effect, an External Force acting on that portion of matter, and with reference to its cause we call it the Action of the other portion of matter. The opposite aspect of the stress is called the Reaction of the other portion of matter.

Here we see the envisionment that Maxwell had gained in the electromagnetic field actually remodelling his manner of statement for mechanical systems generally. Maxwell was opening up new vistas from a footing in the firmest organization of inquiry the world had ever possessed—that of the Newtonian mechanics. Though our own position is one in which the best we can hope for is to be able to introduce a small degree of order into an existing chaos, we can use his work, and the results that came from it, in our support, believing as we do that, as progress is made, the full system of human inquiry may be studied as if substantially one.

[7] *Matter and Motion,* p. 26.

With this much of introductory display let us now set down in broad outlines three levels of the organization and presentation of inquiry in the order of their historical appearance, understanding, however, of course, as is the way with evolutions generally, that something of the old, and often much of it, survives within or alongside the new. We name these three levels those of Self-Action, Interaction, and Transaction, using capitalization and hyphenization as a convenience of the moment when some form of stress upon the words is desired. These levels are all of them human behaviors in and with respect to the world, and they are all of them presentations of the world itself as men report it. They are as follows:

SELF-ACTION: where things[8] are viewed as acting under their own powers.

INTER-ACTION: where thing is balanced against thing in causal interconnection.

TRANS-ACTION:[9] where systems of description and naming are employed to deal with aspects and phases of action, without final attribution to "elements" or other presumptively detachable or independent "entities," "essences," or "realities," and without isolation of presumptively detachable "relations"[10] from such detachable "elements."

[8] We use the word "thing" deliberately, because it has retained its idiomatic status and is comparatively free from theorists' distortions. For the definite outcome of inquiry, we employ the word "object."

[9] "Transaction," in ordinary description, is used for the consideration as detached of a "deal" that has been "put across" by two or more actors. Such a verbal shortcut is rarely objectionable from the practical point of view, but that is about all that can be said for it. For use in research adequate report of the full event is necessary, and for this again adequate behavioral description must be secured. Dewey's early employment of the word "transaction" was to stress system more emphatically than could be done by "interaction." (See his paper "Conduct and Experience" in *Psychologies of 1930*. Compare also his use of "integration" in *Logic, the Theory of Inquiry*.) The beginnings of this attitude may be found in his paper "The Reflex Arc Concept in Psychology" (1896). Bentley's treatment of political events was of the transactional type in his *The Process of Government* (1908), though, of course, without the use of that name. John R. Commons has used the word comparably in his *Legal Foundations of Capitalism* (1923) to describe that type of economic inquiry in which attention centers on the working rules of association rather than on material goods or human feelings. George H. Mead's "situational" is often set forth in transactional form, though his development is most frequently interactional rather than transactional.

[10] It should be fairly well evident that when "things" are too sharply crystallized as "elements," then certain left-overs, namely, the "relations," present themselves as additional "things," and from that pass on to becoming a variety of "elements" themselves, as in many current logics. This

These provisional characterizations will be followed in a later paper by alternatives showing the variety of points of view from which the issues that are involved must be approached. The reader will note that while names are given as if for the events observed, the characterizations are in terms of selective observation, under the use of phrasings such as "are viewed," "is balanced against," and "are employed." These are the two aspects of the naming-named transaction, for which a running exhibit is thus given, pending clarification as the discussion advances.

The character of the primitive stage of Self-Action can be established easily and clearly by a thousand illustrations, past and present—all confident in themselves as factual report in their times, without suspicion of the way in which later generations would reduce them to the status of naïve and simple-minded guess-work.

For Trans-Action at the latest end of the development we can show a clean status, not as assertion of its existence, but as a growing manner of observation of high efficiency at the proper time and place, now rapidly advancing to prominence in the growth of knowledge.

As for Inter-Action, it furnished the dominant pattern of scientific procedure up to the beginning of the last generation. However, as a natural result of its successes, there grew up alongside it a large crop of imitations and debasements—weeds now ripe for the hoe. To avoid very possible misunderstandings, it is desirable to give a sub-classification of the main types of procedure that may from time to time present themselves as, or be appraised as, inter-actions. We find:

(*a*) Independently formulated systems working efficiently such as Newtonian mechanics.

(*b*) Provisionally separated segments of inquiry given an inter-actional form for convenience of study, though with underlying recognition that their results are subject to reinterpretation in wider systems of description, such, for example, as the investigation of certain inter-actions of tissues and organs within the skin of an

phase of the general problem we do not intend here to discuss, but we may stop long enough to quote the very instructive comment Max Wertheimer recently made on this sort of thing. He had made a careful study of the way in which a girl who was secretary to the manager of an office reported on the character of the office set-up, and he gave her a chapter in his book *Productive Thinking* (1946). His analysis of her account showed it defective in that "it fails to do justice to the structural meaning of the parts." He was led to the further comment that her procedure was "quite similar to the way a logistician would write a list of relations in a relational net-work" (p. 138). Compare also Wertheimer's paper "On Truth," *Social Research* (1934), pp. 135–146.

organism, while remembering, nevertheless, that the "organism-as-a-whole" transactionally viewed (with perhaps also along with it a still wider transactional observation of the "organism-in-environment-as-a-whole") must come into account before final reports are reached.

(*c*) Abuses of (*a*) such as often occurred when, before the Einstein development, efforts were made to force all knowledge under the mechanistic control of the Newtonian system.[11]

(*d*) Grosser abuses much too common today, in which mixtures of self-actional "entities" and inter-actional "particles" are used to produce interactional explanations and interpretations *ad lib.*:[12] as when selves are said to interact with each other or with environmental objects; when small portions of organisms are said to interact with environmental objects as in the traditional theories of

[11] The positions we shall take are in several important respects close to those taken by Richard C. Tolman in his address prepared for the symposium in commemoration of the 300th anniversary of Newton's birth ("Physical Science and Philosophy," *The Scientific Monthly*, Vol. LVII (1943), pp. 166–174). Professor Tolman uses a vocabulary of a different type from what we employ—one relying on such words as "subjective," "objective," "abstraction," "conceptual," etc.—but these wordings are not the significant matter we have in mind. The essential points are that he treats distinctions between the sciences as resting in the techniques of inquiry that are available (pp. 171–172), and that he strongly opposes as a "fallacious assumption" the view that "phenomena at one level of abstraction can necessarily be completely treated at a lower level of abstraction" (p. 174). (Compare our procedure, *op. cit.*, pp. 239–240). We insert this note not to involve Professor Tolman in our construction, but to provide an alternative form of expression for views comparable in these respects to our own which may better suit the needs of persons who find our own manner unfamiliar or undesirable.

[12] A striking example of mixed inter-actional and self-actional procedures will be found in the recent work of Charles Morris, *Signs, Language and Behavior* (1946). Professor Morris introduces the sign as a form of stimulus "caused" by the "properties" of "objects," and does this without any preliminary inquiry into or exposition of the pertinence of either "property," "object," or "causation" for such a specialized development. He defines behavior as exclusively the "purposive action" of muscles and glands, but leaves uninvestigated the status of "purposiveness" in such a location. He then brings stimuli and behaviors together, so far as sign-process is concerned, through the insertion between them of "dispositions" which may be spoken of physiologically as habits if one wishes, but which are in effect uninvestigated surrogates for the ancient "mental" states. Dispositions transform into interpretants; interpretants require interpreters. Superimposed upon them, whether separately or together, are the terms "denotata" and "significata" taken over from the older logics and epistemologies but nowhere factually investigated in connection with signs and behaviors. The result is a mechanical organization of vocabularies purporting to be a new science called Semiotic and providing a basis for the solution of the most troublesome modern problems of logic and knowledge.

sensation; when minds and portions of matter in separate realms are brought by the epistemologies into pseudo-interactional forms; or, probably worst of all, when a word's meaning is severed from the word's actual presence in man's behavior, like a sort of word-soul from a word-body.

Returning now to physics for a further examination of its increasing use of transaction, we may preface discussion with a few general words on self-action. We need not go far back into cultural history to find the era of its dominance. It took Jupiter Pluvius to produce a rainstorm for the early Romans, whereas modern science takes its *pluvius* free from Jupiter. The *Lares* and *Penates* which "did" all that happened in the household multiplied so excessively in Rome that in time they became jokes to their own alleged beneficiaries. The Druid had, no doubt, much tree lore useful for his times, but to handle it he wanted a spirit in his tree. Most magic has this type of background. It took Robin Goodfellow, or one of his kind, a Brownie perhaps, to make cream turn sour. In modern times we have flocks of words of respectable appearance that spring from this source: such words as "substance," "entity," "essence," "reality," "actor," "creator," or "cause," and thus, indeed, the major part of the vocabulary of metaphysics.[13]

Aristotle's physics was a great achievement in its time, but it was built around substances. Down to Galileo men of learning almost universally held, following Aristotle, that there exist things that completely, inherently, and hence necessarily, possess Being; that these continue eternally in action (movement) under their own power—continue, indeed, in some particular action characteristic of them in which they are engaged. The fixed stars, under this view, with their eternal circular movements, were instances. What did not, under the older pattern, thus act through its inherent power, was looked upon as defective Being, and the gradations ran down to "matter" on its lowest level, passive and inert.

Galileo's work is generally recognized as marking the overthrow

[13] The distinction between ancient rigidities of naming and scientific names of the firm (but not rigid) type, such as we desire to attain in our own inquiry, stands out clearly here. The ancient substances needed rigidity, fixation of names to things in final one-to-one correspondence. Pre-Darwinian classification of living forms showed the rigid trend as opposed to modern freedom of development. We have surviving today in obscure corners numerologies and other superstitions under which things are controlled by the use of the right names. We even find remnants of the ancient view in many of our modern logics which seek domination by verbal development. Bertrand Russell's logical atomism with its never-ceasing striving after minutely named "realities" may be mentioned in this connection.

of Self-Action in physical doctrine, and it was just this feature of it which aroused so much hatred for him among the men of the ancient tradition. An excellent account—probably the best yet given—will be found in Max Wertheimer's book *Productive Thinking* (1945).[14] Departing from the Aristotelian view that eternal force had to be applied to any inert body to put it in motion and to keep it in motion, Galileo made use of an inclined plane in substitution for a falling weight, as a direct aid to observation. Here he identified the acceleration as the most significant feature for his purposes. He then considered the opposed case of a weight tossed upwards, using similarly an ascending inclined plane for his guide, and identified negative acceleration. Together these yielded him the limiting case of the horizontal plane constructively lying between the descending and the ascending planes. He thus identified the fact (more pretentiously spoken of as a "principle" or "law") of inertia in its modern form: a mass once in motion continues in motion in a straight line, if not interfered with by other moving masses. Its motion, in other words, is no longer supposed to be dependent on the continued push applied to it by an "actor." This discovery was the needed foundation for the interactional development next to come. Nevertheless, it itself was transactional within and with respect to the situation of its appearance: what, namely, had been an incident or result of something else was now taken up into direct report as event.[15] Hobbes quickly anticipated what Newton was later to establish, and Descartes made it his prime law of nature. For Newton it became the first law of motion, leading, through a second law concerning direction and proportionality of force, to the third law, namely, that action and reaction are equal

[14] Quotations of pertinent phrases from both Aristotle and Galileo are given by Einstein and Infeld in the opening chapter of their book previously cited. Wertheimer concentrates attention on the "structure" or "Gestalt" which governed Galileo's search. Seen as a stage of development in understanding and presentation in the cultural setting in which it was produced, this is in the line of our treatment. Seen, however, as Wertheimer has continued to see it, as a mental activity of self-actional parentage applied to an outer world of objects, it falls far short of the manner of statement which we believe to be necessary. The "mind" Wertheimer relies on is far too reminiscent of the older days in which the "physical" opposed to it was an all-too-solid fixture. Wertheimer, in his last book, has nevertheless dropped much of the traditional mentalistic phraseology; and this with no loss to his presentation.

[15] In his early study of perception Max Wertheimer made the comparable demonstration that motion could be *directly* perceived. "Experimentelle Studien über das Sehen von Bewegung," *Zeitschrift für Psychologie*, Vol. 61 (1912), pp. 161–265.

and opposed—in other words, to the establishment of the full interactional system of mechanics.

The Newtonian construction—unexcelled for its efficiency within its sphere—viewed the world as a process of "simple forces between unalterable particles."[16] Given a closed system of this kind the interactional presentation had now been perfected. This, however, had been achieved at the cost of certain great omissions. Space and time were treated as the absolute, fixed, or formal framework within which the mechanics proceeded—in other words, they were omitted from the process itself. The "unalterable" particle, with respect to its unalterability, was similarly an "omission," though one could freely select whatever "unalterables" one wished for experimental introduction as different problems arose. One immediate effect of Newton's success *within* his accepted restrictions was to hold him to the corpuscular theory of light and make him hostile to the competing wave theory of Huygens.

Einstein's treatment, arising from new observations and new problems, brought space and time into the investigation as among the events investigated. It did more than that: it prepared the scene for the particle itself to go the way of space and time.[17] These steps were all definitely in the line of the transactional approach: the seeing together, when research requires it, of what before had been seen in separations and held severally apart. They provide what is necessary at times and places to break down the old rigidities: what is necessary when the time has come for new systems.

The new foundation that has been given physics on a transactional basis, replacing the old interactional extremism, has not yet been made complete. Rival treatments and interpretations have their special places, and what the outcome will be is not wholly clear. Einstein himself devotes his efforts to securing a general field theory, but singularities remain in the field, which he has not as yet been able successfully to deal with. Whether "field" *in physics* is to represent the full situation, or whether it is to be used for an environment to other components is not *our* problem, and is not essential to a general consideration of the transactional phase of inquiry. Our assertion is the right to see in union what it becomes important to see in union; together with the right to see in

[16] Einstein and Infeld, *op. cit.*, pp. 58, 255.

[17] "Insofar as wave mechanics has recognized two words that used to be associated with electrons—*position* and *momentum*—and has provided mathematical expressions as sort of tombstones to correspond to these words, it has done so with the least invocation of trouble to itself," W. F. G. Swann, "The Relation of Theory to Experiment in Physics," *Reviews of Modern Physics*, Vol. 13 (1941), p. 193.

separation what it is important to see in separation—each in its own time and place; and it is this right, when we judge that we require it for our own needs, for which we find strong support in the recent history of physics. The physicist can readily find illustrations of the two-fold need in his daily work. The changes in stress across the generations, from force as a center to the *vis viva* of Leibnitz, and then on to energy as a special kind of thing in addition to material things and to the development of the de Broglie equation connecting mass and energy, are in point. Energy now enters ever more in the guise of a described situation rather than in that of an asserted "thing." Long ago some significance, apart from mere puzzlement, was found in the facts that an electric current was not present without a circuit and that all that happened was not "inside" the wire. Twenty years ago physicists began to ask whether light could "start" from a light source, near or distant, if it did not have its place of arrival waiting for it. Today, as indicative of the status of physics, we get discussions strewn with sentences such as the following: " 'The path of a light ray,' without including the environment of the light ray in the description, is an incomplete expression and has no operational meaning"; "The term 'path of a particle' has no more operational meaning than 'path of a photon' in ordinary optics"; "Speaking exactly, a particle by itself without the description of the whole experimental set-up is not a physical reality"; "We can not describe the state of a photon on its way from the sun"; "The law [of causality] in its whole generality cannot be stated exactly if the state variables by which the world is described are not mentioned specifically." [18]

Our aim in this examination of the transformation of viewpoints in physics has been solely to make it plain how largely the manner of approach we propose to employ for our own inquiry into knowings and knowns has been already developed by the most potent of all existing sciences. We may supplement what has been said, for the benefit of any still reluctant philosophical, epistemological, or logical reader, by a few citations from the Einstein and Infeld work previously quoted. "The earth and the sun, though so far apart," were, under Newton's laws, "both actors in the play of forces. . . . In Maxwell's theory there are no material actors" (p. 152); "We remember the [mechanical] picture of the particle changing its position with time. . . . But we can picture the same motion in a

[18] These phrasings are all from Philipp Frank's excellent monograph, *Foundations of Physics*, the most recent publication of the *International Encyclopedia of Unified Science* (Vol. I, No. 7, 1946, pp. 39, 45, 48, 53).

different way. . . . Now the motion is represented as something which *is*, which exists . . . and not as something which changes . . . " (pp. 216–217); "Science did not succeed in carrying out the mechanical program convincingly, and today no physicist believes in the possibility of its fulfillment" (p. 125); "The concepts of substances, so essential to the mechanical point of view, were more and more suppressed" (p. 148); "The properties of the field alone appear to be essential for the description of phenomena; the differences in source do not matter" (p. 138); "The electromagnetic field is, in Maxwell's theory, something real" (p. 151).

So far as the question of what is called "physical reality" arises in this connection, a reference to a well-known discussion between Einstein and Niels Bohr about ten years ago is pertinent. In contrast with his transactional (i.e., free and open) treatment of *physical* phenomena, Einstein has remained strongly self-actional (i.e., traditionally constrained) in his attitude towards man's activity, *intellectually* described. Thus he declares that "physical concepts are free creations of the human mind" (*op. cit.*, p. 33), and that "the concepts of the pure numbers . . . are creations of the thinking mind which describe the reality of our world" (*ibid.*, p. 311).[19] Bohr, in contrast, achieves a much more modernized view of the characteristics of these transformations within scientific construction. With reference to the issues as to momentum in the wave theory Einstein had held that "every element of the physical reality must have a counterpart in the physical theory," and that "when the operators corresponding to two physical quantities do not commute, the two quantities cannot have simultaneous reality." Bohr, employing his "notion of complementarity," held that the Einstein-Podolsky-Rosen "criteria of physical reality" contained "an essential ambiguity" when applied to quantum phenomena. He asserted further that while relativity had brought about "a modification of all ideas regarding the absolute character of physical phenomena," the still newer features of physics will require "a radical revision of our attitude as regards physical reality."[20] What is involved here is an underlying, though not explicitly developed, conflict as to the manner in which mathematics (as symbolic) applies to physics (as fact-seeking). This in turn involves the organization of symbol with respect to name among the lin-

[19] Various significant comments on Einstein's attitude in this respect, which Wertheimer largely shares, will be found scattered through the latter's book, *Productive Thinking*, previously cited.

[20] "Can Quantum-Mechanical Description of Physical Reality be Considered Complete?" A. Einstein, B. Podolsky, and N. Rosen, *Physical Review*, Vol. 47 (1935); Niels Bohr, *ibid.*, Vol. 48 (1935).

guistic behaviors of men. We have previously indicated the type of construction we shall use for this problem, and at a later time will give it extended treatment.

JOHN DEWEY
ARTHUR F. BENTLEY

NOTES ON THE CATEGORIES OF NATURALISM

IN his recent excellent review of *Naturalism and the Human Spirit*,[1] Professor Arthur Murphy speaks of Professor W. R. Dennes's paper, "The Categories of Naturalism," as the "most puzzling" of all the essays in that spirited and challenging volume. I share something of Mr. Murphy's puzzlement; I also share his doubts as to the "neutrality" of Mr. Dennes's categories, their freedom from any specification concerning the positive content of existence, or their all-inclusiveness as basic terms of reference for the interpretation and explanation of phenomena.

In the present paper, I wish to raise some further questions concerning (*a*) the status, (*b*) the ultimacy, (*c*) the all-pervasiveness, and (*d*) the indispensability of the categories of naturalism as Mr. Dennes interprets them. It will be argued that while Mr. Dennes is equivocal with respect to the rôle and status of categories—whether, that is to say, they are to be construed as categories of interpretation or inquiry or also as categories of being—on his own showing a realistic interpretation is not only possible but necessary.[2] It will be urged that the ultimacy or irreducibility of categories is to be distinguished from their all-pervasiveness, for although at least two of Mr. Dennes's primary categories (quality and relation) are clearly ultimate, they are not, in at least one important sense, all-pervasive. The same point will be made regarding secondary categories. It will be suggested that the very ultimacy or irreducibility of a category involves its indispensability for any adequate categorical scheme, naturalistic or otherwise. Finally it will be questioned whether Mr. Dennes's analysis of the category of "event" has sufficiently demonstrated its irreducibility and hence its indispensability.

I

According to Mr. Dennes, the basic categories of modern naturalism are "event," "quality," and "relation." In this respect he

[1] This JOURNAL, Vol. XLII (1945), pp. 400–417.

[2] Mr. Dennes makes this point quite clearly when he says that it is "experience, not any philosophical presupposition or the definition of any category (such as 'meaning' or 'event'), that justifies us in saying that events have context, qualities, causes, effects, and values" (*op. cit.*, p. 273).

reflects, I think, the view of most contemporary naturalists. These categories are said to be irreducible, ultimate, and pervasive "terms" or "traits" which are characteristic of all being. They are also presumably the only categories which are ultimate, irreducible, or pervasive. They are to be distinguished, therefore, from such "secondary" categories as "order," "space," "time," and "cause," which designate less basic aspects of reality.

Two questions of considerable importance arise at the outset. In the first place, it is not wholly clear from Mr. Dennes's account just what is meant by speaking of such categories as "space" and "cause" as "secondary." Are they to be regarded (*a*) as irreducible *species* of primary categories (e.g., "time" seems to be a species of "relation," as does "space"), or (*b*) as names of particular *combinations* of "qualities," "relations," and/or "events" (e.g., "context" seems to be a name of the conjunction of events spatially and temporally adjacent to any given event, although it does not seem to designate an ultimate kind of quality, relation, or event in the way that "time" or "space" appears to do). Now there is a perfectly clear sense in which "time," although it is a species of relation, is ultimate in a way that "context" or "cause" perhaps is not. "Time" may be characterized as asymmetrical and transitive; but it is probably not reducible to any other relation or combination of relations. To exclude it from any categorial scheme, therefore, would thus *ipso facto* render such a scheme inadequate to express the characteristics of all being. But "context"[3] designates nothing which could not equally well be referred to by specifying the particular things which adjoin a given event. It is, therefore, a dispensable term which is introduced solely for the sake of emphasis and convenience, and not a true category at all. Mr. Dennes's references to secondary categories suggest the distinction which I have in mind, but his discussion indicates that he has not finally decided in which sense certain categories are to be construed as "secondary." In one passage he tells us that these categories are names for "configurations of factors designated by such basic categorial terms as 'events,' 'qualities,' and 'relations.'" In another passage he refers to certain "metaphysical categories" as "specific and familiar traits and patterns of occurrences."[4] These, I take it, he would also regard as secondary. But, as I have shown, there is an important difference between those categories which are "specific" traits and those which are merely "configurations" of factors. Secondary categories of the former type, quite as much as primary categories, are

[3] This is my example.

[4] *Op. cit.*, p. 275.

irreducible and hence necessary to an adequate categorial scheme. Those of the latter type are presumably reducible to the particular terms which comprise the "configurations" which they name. I suggest, however, that we would wish to include in our schemes of categories all irreducible traits of being, generic or specific, but that we would not wish to include the names of reducible configurations or combinations. Thus we would certainly wish to include "time" among our list of categories, although we would not wish to include "state" (to mention one included in Aristotle's list), and probably we would not wish to include "context" or "cause." These considerations will be seen to be of utmost importance when the question as to the nature and status of the category of "event" is raised.

In the second place, Mr. Dennes's analysis of the notion of "category" seems to betray a fundamental ambiguity or ambivalence as to its status. This is even reflected in his apparently interchangeable use of the words "term" and "trait." At times he argues that a choice of categories makes *no* difference to the content of any descriptive or explanatory theory, but "only to the language employed in formulating the theory."[5] At other times, however, he speaks of them as "patterns" of existence which are universal and pervasive. If, for the moment, we waive the question whether categories tell us anything *specific* about existence, it seems clear that any word which refers to a "pattern of existence" clearly belongs to the language of objects. This appears, at times, to be Mr. Dennes's own conclusion, as, for instance, when he argues that although there may be no quality *überhaupt*, but only particular qualities, nevertheless, "all that we call qualities seem to differ in specifiable ways from all that we call relations." From this he concludes that we could "really dispense with one or other of these categories only if we proposed not to consider one phase of existence or another."[6] But if this means what it *seems* to mean, then whether categories are traits of "all possible being" and hence determinable by logical analysis alone, or merely pervasive empirical aspects of actual existence, they can not be thought of as merely "referents in procedures of interpretation" which have no ontological significance whatever. It is in complete puzzlement, therefore, that we ask how *mere* "referents in procedures of interpretation" can be also "factors" which are "the *constituents* of all that occurs, of all that exists."[7] The point is of fundamen-

[5] *Op. cit.*, p. 275.
[6] *Op. cit.*, p. 292.
[7] *Op. cit.*, p. 282.

tal importance because in general contemporary naturalism, following its leader, John Dewey, has vacillated inconclusively between a pre-analytic realism which, we are assured, it never meant to doubt, and a post-analytic instrumentalism for which our procedures of inquiry determine the character of what is known.

A further difficulty which concerns both the status and interrelations of "quality," "relation," and "event," may be brought out by considering the phrase "trait of being" as a characterizing phrase for "category." Now "trait of being" at first sight suggests that a category is something which is predicated *of* being, but is not itself a being, i.e., an actual entity existing in its own right. It is a question, however, whether categories (or their instances) are characteristics of something else, call it "being," whose instances alone exist as such, or whether categories represent types of *beings*, in the same sense in which a cow is a kind of animal. In short, do qualities, relations, and events exist, or are they characteristics of something else which does exist, although they themselves do not exist? In Spinoza's terms, are they "substances" or "attributes" of substance? If we take the latter view, with which much that Mr. Dennes asserts about categories seems to be incompatible, then it is impossible to understand how "event" can be considered as "trait of being." Of what could we say that an event is a "trait," in the *same* sense in which we can say that a "quality" is a "trait"? On this analysis, I suggest, "events" are not names for "traits of being," but, rather, names for "beings." If so, however, it would seem to follow that "quality" and "relation" are the only basic traits of being, although they themselves do not exist and, in any case, there would be a radical difference between the status of qualities and relations as traits or categories of being and events as beings.

On the former view, categories represent not characteristics but types of *being*, whose instances are actual entities. From this standpoint, as I will hope to show, "event" is superfluous, since it is difficult to see what any event could be but a bundle or configuration of qualities and relations. What kind of entity, it may be asked, is an event, as distinguished from "its" qualities and relations? Admittedly, it is distinguished only *by* its qualities and relations. But, then, is it not reducible to them?

In short, if qualities and relations are conceived as traits *of* being, then events are beings but not traits, in which case, "event" is not a category. But if they are thought of as types of *being*, then "event" would appear not to be a basic or irreducible category. I agree with Russell, however, that in reality, the old Aris-

totelian syntactical distinction between names of things or existents and the names of qualities or relations which are said to be about the former corresponds to no logical necessity.

II

Mr. Dennes's own arguments show conclusively that both "quality" and "relation" are irreducible categories. Qualities exhibit characteristics which relations do not, and vice versa.[8] Relations may be said to "hold" between qualities (and events), but it is nonsense to speak of qualities or events as "holding" between one another. Another difference is that relations depend upon qualities and can not occur without the qualities which they relate, although qualities are not dependent in the same way upon relations. It may be true that all qualities are in fact related to something else, but it is perhaps not logically necessary that they should be so.

If this is true, then, both "quality" and "relation" are irreducible and necessary parts of any adequate categorial scheme. To exclude either of them would be to exclude from "all being" some logically distinct and verifiable aspect of it. But precisely because they are irreducibly distinct, neither can be said to be an absolutely pervasive aspect or trait of being.

It is difficult to see, therefore, how a selection of basic categories could be a mere act of volition, as Mr. Dennes sometimes seems to suggest. In a passage, already quoted in part, he tells us that "a choice of categorial traits as basic referents in explanation can make no legitimate difference whatever to the content of any descriptive or explanatory theory, but only to the language employed in formulating the theory."[9] His own analysis, it would seem, indicates the error of this statement. In another passage, however, he puts the matter more circumspectly, and it is important to note the difference between the two formulations. In this latter passage he argues merely that "he categories basic in any philosophy can not legitimately restrict the content of positive theories (if any) developed within *that* theory.[10] But this statement, although it is truistic, is far from implying that a choice of categories makes no difference to the content of *any* theory. It is obvious that a metaphysics containing the category of "relation" is neutral with respect to the specific determinants of that category. But a metaphysics from which the category of "relation" is excluded would make it altogether impossible to express the content of some theories.

[8] *Op. cit.*, p. 282.
[9] *Op. cit.*, p. 275.
[10] *Op. cit.*, p. 271.

A metaphysics such as that of Leibniz in which statements asserting interaction or causal relation between distinct substances are impossible would very materially affect the content and meaning of such statements as the following, if we attempted to formulate them in terms of Leibniz's categories: "*a* told *b* about *x*," "*a* is the father of *b*," "Hitler caused the death of many Jews," and finally (to give one of Russell's examples), "there are many substances."

So far as I can see, then, Mr. Dennes's own view that "quality," "relation," and "event" are all indispensable would be untenable, even in principle, if it did not make a very important difference which and how many categories are selected as basic. A categorial scheme from which the concept of "relation" is excluded would evidently render it impossible to designate actual traits of being. The effect of such an exclusion would thus render the categorial scheme itself either inadequate or, in case relations were regarded as qualities, false.

III

The problem concerning the indispensability of the categories of naturalism, as interpreted by Mr. Dennes, was not raised explicitly in Mr. Murphy's review. But, as I have shown, the attempt to define the status and interrelations of these categories renders at least problematical the sense in which they are all to be considered as indispensable "traits of being." I should like to consider more closely, however, the category "event," and the arguments put forward by Mr. Dennes concerning it. We may begin by following Mr. Dennes's analysis of the reasons which have led to the shift from the category of "matter" to that of "event."

In the first place, the category of matter is neither ultimate nor pervasive. It is for this reason, rather than because of its alleged meaninglessness,[11] that modern naturalists have given it up as a basic or generic category. The category of "event" is surely much more neutral. Nor does it involve the vicious reductivism which was the besetting sin of the older materialistic versions of naturalism. No doubt, also, as Mr. Dennes points out, the shift from "matter" to "event" reflects the *hypothesis* that nearly all "ranges of existence have aspects (and important aspects) that are more

[11] It is surely doubtful whether any naturalist has conceived of "matter" as *logically* indestructible or unchangeable. The older materialists held that there is in fact a constant quantum of matter, and that the internal composition of individual atomic particles of matter does not change. These statements are no doubt improbable, but they can hardly be said to be meaningless. Cf. *op. cit.*, pp. 279–280.

fluid, more complex, and more intricately interactive than men had grounds for believing them to be in the nineteenth century and earlier."[12] For these reasons contemporary naturalism is both logically and empirically more adequate and less obsolescent than older versions of this philosophy, such as Spencer's, whose very specificity has committed them to oblivion.

It must be said, however, that the increasingly neutral character of the categories of contemporary naturalism renders it much "thinner" and less distinctive as a metaphysics. What it has gained in universality and indestructibility it has lost in richness of content and significance. Hence the charge of some critics that it is metaphysically jejune and uninteresting is not altogether without point. The systems of Whitehead, Alexander, or even Bergson, have an imaginative appeal which the more cautious and colorless naturalism of writers like Professor Dennes can scarcely equal.

Be this as it may, one must agree with Mr. Dennes that basic categories should be as neutral and as universal as possible. Differences between metaphysical systems should be confined to the level of secondary categories. Concerning the status or pervasiveness of "teleology" or "space" within the scheme of things there is room for reasonable difference of opinion. But any metaphysics worth discussing must surely include such basic categories as quality or relation.[13]

One wonders, however, whether the category of event holds quite so viable a place in the naturalistic metaphysics as Mr. Dennes suggests. Like "substance," "event" seems to serve mainly the purpose of providing a nucleus or subject for qualities and relations. Without events, it is sometimes argued, there would be nothing for qualities or relations to be predicated *of*. Qualities and relations are the qualities and relations of processes, and process or event is necessary to indicate the nexus of the changing manifold of relations and qualities. Mr. Dennes himself reflects this position in-

[12] *Op. cit.*, pp. 279–280.

[13] In passing it is worth remarking that Professor Dennes is entirely correct in linking the attempt of modern naturalism to free its categories as far as possible from empirical commitments of any kind with the Aristotelian categorial analysis of being, *qua* being. The appeal of Aristotle to many contemporary minds, regardless of the serious doubts which may be raised with respect to its concepts of "substance," "prime matter," and "final cause," is due mainly to the fact that it is so hospitable to a great variety of empirical hypotheses concerning the specific content of existence. If Aristotle's philosophy has seemed to some minds *Philosophia Perennis*, this is precisely because of the relative neutrality of its basic categories. If this philosophy is becoming obsolescent it is for quite different reasons from those which have antiquated such systems as Hobbes', Spencer's, or Bergson's.

directly when he speaks of "the truism that no event (events) can be fairly described as a complex of factors from which the factor of process is excluded." [14]

But when one asks just what an event is, apart from the qualities and relations which are said to characterize it, no clear answer is forthcoming. One answer, which is nevertheless specious, makes a certain appeal to philosophers who are concerned mainly to avoid the charge of reductivism: although no event can occur apart from its qualities and relations, just as no relation can occur without the terms which it relates, this does not imply that an event is reducible to its qualities and relations, any more than it implies that a relation is reducible to its terms. But a relation is identifiably and logically distinct *from* its terms, whereas it is at least a question whether this is true of events. The relation may be dependent upon its terms, but it is not reducible to them or identified merely by them. An event, on the other hand, is not distinguished from its terms, but, rather, *by* them. This is admitted by Mr. Dennes himself. "To be aware of, or to imagine, change or process is to experience differences of the kind called 'qualitative.'" [15]

I submit that on any theory of meaning which connects the meaning of a term, however loosely, with what is observable, no term whose designation is identified and distinguished *solely* by its observable qualities and relations can be regarded as designating a basic or irreducible aspect of what exists. The "process" or "event" factor would seem, therefore, to refer merely to (*a*) the fact that qualities and relations tend to be associated patterns or configurations, and (*b*) the fact that such patterns are changing, i.e., have different qualities and relations at different times. But configuration and change are relational concepts which do not designate some *tertium quid* of a distinct categorial type.

Again, as Professor Dennes points out, our basic categories in the last analysis must be grasped ostensively or not at all. But although it is easy to exhibit instances of mere quality or relation, events *as such* are literally impossible to find. What is indicated turns out, upon examination, always to be some qualitative or relational factor. The same criticism, indeed, has often been applied by naturalists and empiricists themselves to the Aristotelian doctrine of "matter." As Mr. Dennes himself says, "Of the factors of occurrence that distinguish qualities and related events from qualities and relations *in abstracto,* one may say as Aristotle did of what he called ὕλη, that, in itself indeterminate, it could not possibly exist or be conceived by itself (devoid, that is, of qualities

[14] *Op. cit.,* p. 281.
[15] *Op. cit.,* p. 281.

and relations that distinguish actual occurrences from one another and from nothing)."[16] But if event, as such, like matter, is wholly indeterminate, it would seem to be an utterly vacuous concept which designates literally nothing at all.

It may be said, however, that even if the concept of event is given up, it is nevertheless possible to distinguish "quality" and "relation" *in abstracto* from their instances. And it may perhaps be urged that the term "event" is as good as any other for distinguishing the instance from the quality or relation, abstractly conceived. I do not wish to dispute with Mr. Dennes over names, but the notion of "event" seems to carry a temporal, and perhaps a spatial, connotation that is not implicit in the notion of an "instance." But precisely for this reason I would suggest that "instantiation" is a more neutral, and possibly more indispensable, factor of a working ontology than "event." We may, if we wish, regard "events" as instances which appear in space and time. But, if so, they clearly belong to the level of secondary categories.

But, even here, doubts arise. For the consistent empiricist it is difficult to see any real difference between the statements, "This is (an instance of) green" and "Green is here (and now)." The empiricist finds it far more credible to suppose that he sees green itself than that he sees the instance of some non-experiencible abstract quiddity. To some philosophers Santayana's view that essences may be given in sensation seems paradoxical. To my mind, however, Santayana is a more consistent empiricist and naturalist on this score than those who regard essences not as sensory abstracta but as intelligible "universals" which are known only to thought and bear no similarity whatever to their perceptual instances.[17] I see no reason why we may not, with Hume, regard abstraction simply as that act of attention which identifies and distinguishes qualities and relations from one another. Whether a quality attended to or identified is the "same" as, or identical with, one which appears in a different time and place is a question of fact, which does not require that two "occurrences" be regarded as occurrences of some third thing. If this "instance" of green and that "instance" of green are qualitatively identical, this can be simply

[16] *Op. cit.*, p. 282.

[17] It is worth pointing out in this connection, as Santayana himself says in the "Postscript" to his *The Realm of Essence*, that Whitehead and Husserl have suggested a very similar or identical view. Cf. Santayana, *The Realms of Being*, pp. 168 ff. In the *Inquiry into Meaning and Truth*, Russell adopts this so-called "subjectivist principle" (there is nothing subjective about it) repudiating particulars and retaining only characteristics. For an excellent analysis of Russell's position, cf. Roderick M. Chisholm's essay, "The Foundations of Empirical Knowledge," in *The Philosophy of Bertrand Russell*.

taken to mean that the quality of green itself is manifested in more than one spatio-temporal context.[18]

In conclusion, I suggest that we may, then, admit that there are "events" without holding that the term "event" is basic or categorial. Descriptions of events may be regarded as descriptions of configurations of qualities-in-relation. To avoid any possible misapprehension, however, let me add that pragmatically, if not logically, the notion of "event," like that of "thing," is an indispensable, though elliptical, element of any language which seeks to get on, as readily as possible, with the world's business. For pre-analytic purposes of communication and convenience it is not always necessary to unwrap our bundles of qualities and relations. But we must not regard the pre-analytic "wrapping" as an intrinsic and ultimate metaphysical category.

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BOOK NOTES

Types and Problems of Philosophy: An Introduction. HUNTER MEAD. New York: Henry Holt and Company. 1946. xi + 402 pp. $3.00.

As its title indicates, this introductory textbook combines the "types" and the "problems" approaches to philosophy in a single volume, and organizes the whole, as its title does not indicate, about the conviction that philosophy is best understood by beginners in terms of the conflict between two (and only two) world-views: idealism and naturalism. The author grants that the professional philosopher, "thoroughly at home in his field despite its great complexity, may find such an arrangement almost too simplifying." Yet he believes the pedagogical results so "definitely superior" that he goes ahead, establishing but the two "major frames of reference" for all that is to follow.

He is soon in hot water with both idealists and naturalists, for his endeavor to simplify, reaching its extreme in the chapter headings: "Idealism: The World Is Friendly" and "Naturalism: The World Is Indifferent" conceals a host of varieties of each. In his

[18] In Dr. Chisholm's analysis of Russell's theory of basic propositions, he shows admirably the (to me) insuperable difficulties of the view, most clearly formulated by C. D. Broad, that we "prehend" particulars which are characterized by qualities. Perhaps the basic difficulty is simply that particular is unknowable: what it is known *as* is always some quality or relation. Cf. *op. cit.*, pp. 431–437.

effort to set up "two opposite poles of philosophy," one allied to religion and the other to science, he produces two extreme positions, one of which satisfies the head but not the heart, and the other the heart but not the head. His dominant interest seems to be in portraying what he calls "The Divergent Over-All Moods of the Two Schools" rather than their "intellectual details," on the ground that it is the former which are "decisive to the layman." On the one hand, "to read the works of the great idealists is much like listening to music: the discords of our daily life seem to resolve, and we are carried along by a tide of confidence that suggests the promise of the Great Amen. . . . When at last we lay down the book our mood is like that which follows the performance of a great symphony." Naturalism, on the other hand, "can offer us only the Spartan mood and high-priced exhilaration of a morning shower with no hot water. . . ." Thus naturalists "will probably always remain a hardy minority, tolerated as harmless but slightly eccentric. For naturalism offers no mood of certitude and comfort, no Great Amen resolution to the discords of life" (pp. 97–98).

Beneath this philosophical great divide lies a fundamental issue which is not, as many persons believe, "whether the nature of the ultimate Real is material or mental. Instead, it is this: Is the world-order at heart a *mechanical* order or a *moral* order?" (italics in the original). Despite the probability that the two schools may be able to agree that "energy is the ultimate world-stuff," they are locked in "permanent opposition" over its interpretation (pp. 84–85). Although the author grants that "there are nearly as many subschools within naturalism as within idealism," he is prone to sweeping identifications of naturalism with such specific positions as "For naturalism, mind is only an instrument or tool" (pp. 86–87).

The remaining twelve chapters of the book are devoted to summaries of the classical philosophical issues in such a way as to display the idealistic and naturalistic versions of each: Evolution, Mind, Truth, Epistemology, Metaphysics, Ethics, Freedom, Esthetics, God, and Immortality. Occasionally the verdict goes to one extreme or the other, but more often the battle is to a draw, since, in the author's judgment, "both world-views are probably on a par as concerns their logic." There are, however, certain rather mystifying references to idealism's superiority in "moral logic," presumably the reasons of the heart.

As might have been expected in the beginning, after several hundred pages of argument each philosophy outflanks the other without bringing about any change of its opponent's heart or head. "Is the battle between the idealist and the naturalist 'all a matter

of glands'?" the author finally inquires. "Such a theory, if it could be established experimentally, would seriously endanger the whole structure of idealistic metaphysics . . ." leaving it "up in the air with no support, and little except a certain esthetic charm to justify its existence. We have thus come full circle: what we can believe about God and immortality appears to be determined by what we can believe about the nature of the world in general—which in turn is seen to depend upon what we can believe regarding the sources or determinants of belief itself. . . . It is hard to see what other conclusion is possible. In the last analysis we believe what we can; but this in turn is dependent upon such a multiplicity of factors, which vary so widely from individual to individual, that each mind will have its own particular possibilities of belief" (pp. 372–373).

Any introductory exposition which leaves the student so completely on his own with but two such mutually blinding lighthouses to guide him seems to be of doubtful value. Neither idealists nor naturalists are likely to find its depictions of their positions entirely acceptable. Professor Mead has sacrificed too much to supposed dramatic contrast, and has allowed a sterile dichotomy inherited from the battles of the nineteenth century to dominate his treatment in a century which has been struggling toward more subtle and mediating views. So, in spite of his conscientious reviewing of the issues in the light of his thesis of philosophy as essentially an "irreconcilable conflict" between idealism and naturalism, this reviewer finds it not only "not proved" but a step backward in the construction of introductory texts. The volume includes a "Glossary of Terms" based on the works of Baldwin, Runes, and Lalande.

H. A. L.

Time as Dimension and History. HUBERT GRIGGS ALEXANDER. (University of New Mexico Publications in the Humanities, No. 1.) Albuquerque: University of New Mexico Press. 1945. 134 pp.

In analyzing time the author distinguishes two aspects of that complex and evasive phenomenon. On the one hand temporality reveals itself under the form of repetitive and cyclical movement, on the other hand under the form of a unique and progressive change (p. 7). Coupled with the first aspect is a quantitative mode of cognition, while the second aspect is apprehended by evaluational cognition (p. 104). Justly the writer remarks that none of the salient traits of time should be isolated from the others and made the sole basis of interpretation. At the same time he refrains from

any attempt to show how the key concepts by means of which time can be described belong together in a unified pattern. The greater part of the study is filled with notes to the history of the concept of time, and the framework is furnished by an epistemological sketch.

H. K.

Freiheit und Ordnung. Abriss der Sozial-Utopien. ERNST BLOCH. New York: Aurora Verlag. 1946. (Distributed by Schoenhof's Foreign Books, Inc., Cambridge, Massachusetts.) 190 pp. Paper $2.25, cloth $3.25.

A causeur indulging in the mood of gentle revery rather than a cold-blooded analyst, the author invites us to contemplate with him the better worlds, ideal states, utopias, and cities in the air which have sprung from the imagination of poets and philosophers. Dreams are bubbles, and as a dreamer among dreamers our guide does not worry about scientific and terrestrial concerns such as historical accuracy and completeness. But his Erehwonian travelogue is not quite as airy as it might seem. Where Ariel appears, Caliban is not afar. Marx, we are told, discovered not only the real utopia —freedom reconciled to order—but also the real road leading straight towards it. Who knocks at the door? An officer of the GPU? The dream world is shattered and we awake to realities.

H. K.

Recent Trends in English Precedent. JULIUS STONE. Sydney, Australia: Associated General Publications Pty., Ltd. 1945. 76 pp. $2.25.

This monograph is an analysis of the relations of deductive logic to the actual process of legal development studied in the contexts of the French Civil Code, modern Roman law and especially English common law. It is a careful, scholarly, and incisive criticism of what the author calls "the fallacy of logical form" in law and of the limitations of analytic jurisprudence. The substance of this monograph will be incorporated as one of the twenty-seven chapters of the author's forthcoming book, *The Province and Function of Law.*

E. N. G.

De la justice. CHARLES PERELMAN. (Actualités Sociales, Nouvelle Série, 23.) Bruxelles: Office de Publicité, S. C. 1945. 82 pp.

This essay is another attempt to think through the problem generated by the *de facto* existence of incompatible and competing definitions of justice on the one hand and of some common center

of reference in the notion of justice on the other. The author finds the principle of equality to be the common element in such diverse standards as to each the same treatment, to each according to merit, to need, to rank, or to established law. Equality is, for the author, however, a purely formal concept. The choice of any particular standard for measuring equality is arbitrary. A rule of law is to be judged as just by its consistency with a pattern of norms. But this only defers the recognition of the essential partiality of the rule until the basic norm is reached, for in the basic norm is contained the principle of selection of the pattern of rules. Hence, there is, for the author, no perfect justice. Each of our definitions has its proper application in different situations and none are universally applicable. In consequence, the consistent application of any one principle must be supplemented by the principle of equity in the interest of sanity. Because justice is thus limited, "justice without charity is not justice."

E. N. G.

Rosenberg's Nazi Myth. ALBERT R. CHANDLER. Ithaca, New York: Cornell University Press. 1945. ix + 146 pp. $1.75.

This book contains an analysis of the principal doctrines of the "official" philosophical propagandist of National Socialism, Alfred Rosenberg. Although Rosenberg's *Der Mythus des 20 Jahrhunderts* is his most important source of information, the author has consulted a number of other sources, including Rosenberg's replies to his early critics. The book includes brief discussions of Rosenberg as "a man" and "in action."

The author deals rather summarily with Rosenberg because his "basic ideas are so fallacious, and his handling of details is so inaccurate, that an exhaustive study would be superfluous" (p. vi). *Der Mythus* is characterized as "eloquent partisan propaganda, dressed up in voluminous but uncritical erudition" (p. 6). These and other equally censorious criticisms of Rosenberg and his writings are undoubtedly sound. The egotistic Rosenberg is rather easy prey and the author has good sport with him. His treatment of Rosenberg's racial dogmas and prejudices is particularly effective. The author presents his material simply and straightforwardly, in a semi-journalistic style. It is to be hoped that the book will appeal to the general public and be widely read.

In view of the apparent intent of the book, it may not be fair to express the opinion that the deeper lying philosophical issues—the important problem of intuition, for example—are passed over somewhat too lightly. At any rate, it is to be hoped that readers will

not be tempted by the author's easy exposure of the philosophical pretensions and absurdities of Rosenberg to refuse serious consideration of the basic doctrines of the philosophy of national socialism, as developed, for example, by Ernst Krieck and Franz Böhm, and to the disturbing realities which their philosophy seeks to explain.

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CURRENT JOURNALS

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PHILOSOPHY AND PHENOMENOLOGICAL RESEARCH. Vol. VI, No. 4. A Discussion of the Unity of Science—The Meanings of "Unity" among the Sciences, Once More: *H. M. Kallen.* The Orchestration of the Sciences by the Encyclopedism of Logical Empiricism: *Otto Neurath.* The Significance of the Unity of Science Movement: *Charles Morris.* Reply: *H. M. Kallen.* For the Discussion: Just Annotations, Not a Reply: *Otto Neurath.* An Annotation to the Annotation: *H. M. Kallen.* Postscript: Otto Neurath, 1882–1945: *H. M. Kallen.* Types of Unity according to Plato and Aristotle: *Raphael Demos.* On Unity and Diversity: *Marvin Farber.* The Idealistic View of Moral Evil: Josiah Royce and Bernard Bosanquet: *Paul Ramsey.* A Symposium on Probability, Part III—Remarks on Induction and Truth: *Rudolf Carnap.* On the Nature of Inductive Inference: *Felix Kaufmann.* Rejoinder to Mr. Kaufmann's Reply: *Rudolf Carnap.* Comments on Donald Williams' Reply: *Richard von Mises.* Is the Laplacean Theory of Probability Tenable? *Ernest Nagel.* The Problem of Probability: *Donald Williams.* Discussions—Concerning Self-Knowledge: *Ralph Harper.* How Can Analysis be Informative? *Max Black.*

JOURNAL OF SYMBOLIC LOGIC. Volume 11, Number 2. Modalities and Quantification: *Rudolf Carnap.*

PHILOSOPHY. Vol. XXI, No. 79. Some of the Main Problems of Ethics: *C. D. Broad.* Equality and Equity: *D. D. Raphael.* The Neurological Approach to the Problem of Perception: *W. R. Brain.* On Poetic Truth: *H. D. Lewis.*

JOURNAL OF AESTHETICS AND ART CRITICISM. Vol. IV, No. 4. Some Associative Aspects of Color: *Hilaire Hiler*. Perishable Art: *Arnold Isenberg*. Henri Brémond: Poetics as a Mystagogy: *Edouard Roditi*. Emotional Distance in Art: *S. C. Pepper*. The Role of the "Standard Mind" in Art: *Bertram Morris*. On "A College Program in Aesthetics and the Arts": *A. H. Gilbert*. Letters Pro and Con: *P. H. Farnsworth, Van Meter Ames, Ananda K. Coomaraswamy*.

PHILOSOPHY OF SCIENCE. Vol. 13, No. 2. Mechanism, Vitalism, Naturalism: *E. A. Singer, Jr.* A Behaviorist Analysis of Emotions: *V. J. McGill* and *Livingston Welch*. Salvaging Physiological Psychology: *G. Y. Rusk*. Towards an Interpretation of Contemporary Philosophy: *R. L. Ackoff*. Kant, Euclid, and the Non-Euclideans: *P. C. Jones*. Whitehead's Extensive Continuum: *D. L. Miller*. The Foundations of Experience: *Dayton Phillips*. A Science of the People, by the People and for the People: *W. M. Malisoff*. What are Definitions? *J. R. Reid*.

NOTES AND NEWS

Professor George H. Sabine of Cornell University has been selected as the Eighth Carus Lecturer. His lectures will be received on an occasion to be determined by the Executive Committee of the American Philosophical Association and his subject will fall within the general field of social philosophy.

The next meeting of the Charles S. Peirce Society will be held during the Christmas recess in New Haven, Connecticut, in connection with the annual meeting of the Eastern Division of the American Philosophical Association. Papers will be read by Professor Thomas Goudge and Professor Philip Wiener. Other papers are solicited and should be submitted to Professor Paul Weiss, 31 Everit Street, New Haven, Connecticut, before November 1, 1946.